



The study of climate variability in Serbia using atmospheric circulation types

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This paper explores relation between atmospheric circulation and climate variability in Serbia. Classification of atmospheric circulation patterns are useful tools for research the climate-weather-environmental relations. So far, the Hess-Brezowsky catalogue of circulation types and its objective version SynopVis Grossweterlagen system were used in studies for territory of Serbia. It is shown that atmospheric circulation is significant factor of spatial-temporal climate variability. In recent decades the number of computer assisted ("objective") classifications is growing. This research compares performances of objective catalogues (method based on cluster analysis, principal component analysis and neural networks) from database Cost733cat v2.0 in analyzing temperature and precipitation variability in Serbia. Daily precipitation (20 stations) and temperature (15 stations) data for period of 40 years (1961-2000) are used in study. Regional aspect of climate change with atmospheric circulation as predictor is explored also. For this purpose a few methods of spatial interpolation are tested in GIS environment. Special attention is on extreme weather events as cold spells, warm spells, intensive precipitation events and dry days. The coefficient of efficiency is used for identification of synoptic conditions which are most favored for extreme climate events.